

A mimetic assemblage of net-winged beetles (Coleoptera: Lycidae) from West Papua

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Abstract: A new genus, *Metrioguinus* Kazantsev gen. nov., and eight new species of Net-winged beetles, namely *Cautires albonigrus*, *Cladophorus dmitryi*, *Metrioguinus kristinae*, *M. vikhrevi*, *Plateros candidus*, *Porrostoma arfakense*, *Xylobanus albipennis* and *X. mauroleucus* Kazantsev spp. nov. - are described from western New Guinea. All described taxa belong in one mimetic assemblage, characterized by black distally and whitish yellow proximally elytra. These lycids are mimicked by other coleopterans (Cantharidae, Chrysomelidae) from the same habitat.

Key words: Coleoptera, Lycidae, Metriorrhynchini, new species, mimicry, Papuan region.

Introduction

An assemblage of net-winged beetles collected at ca. 1900-2450 m above sea level in the Arfak Mountains in West Papua (Eastern Indonesia) that at a first glance appeared to include two or three species in fact turned out to represent seven species belonging in six different genera from two tribes, Metriorrhynchini and Platerotini. All seven were found to be new to science and one of them turned out to belong to an undescribed genus. Another new species of a similar coloration pattern was found in a distant New Guinean locality, but at approximately the same altitude.

In the present paper a new genus and eight new species from the genera *Cautires* Waterhouse, 1879, *Cladophorus* Guérin-Meneville, 1830, *Metrioguinus* gen. nov., *Plateros* Bourgeois, 1879, *Porrostoma* Laporte, 1838, and *Xylobanus* Waterhouse, 1879 are described and the mimicry of the complex that includes also representatives of Cantharidae and Chrysomelidae is discussed.

Materials and methods

The studied specimens were glued on cardboard or transparent plastic mounting plates. For detailed examination they were relaxed in water; then the detached ultimate abdominal segments were treated for several hours in 10% KOH at room temperature, then, with the extracted genitalia, placed in microvials with glycerin; or glued back on

mounting plates, along with the extracted genitalia, without the KOH treatment.

MSP-1 zoom stereoscopic dissecting microscope with x8–x80 magnification range was used. Photographs were taken with Canon EOS 6D camera and Canon MP-E 65 mm lens.

Abbreviations used in the text:

DTC – private collection of Dmitry Telnov, Rīga, Latvia;
ICM – Insect Center, Moscow, Russia;
NME – Naturkundemuseum Erfurt, Germany.

Taxonomic part

Metriorrhynchini Kleine, 1926

Type genus: *Metriorrhynchus* Gemminger, Harold, 1869

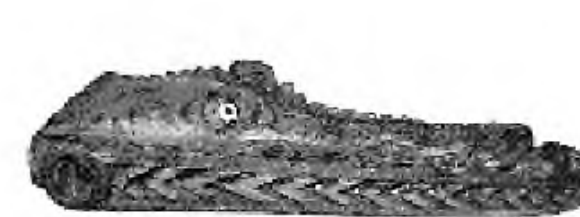
Cautires Waterhouse, 1879

Cautires Waterhouse, 1879: 36.

Type species: *Cautires excellens* Waterhouse, 1878, subsequent designation by Bourgeois, 1891

Note: Several dozen *Cautires* Waterhouse, 1879 species have been reported from New Guinea and adjacent islands (e.g. Kleine 1926, 1933; Kazantsev 2010).

Distribution: Distributed in East Palaearctic, Oriental, Afrotropical and Papuan regions (Kleine 1933). Most species from New Guinea seem to be



different from the type species of the genus (Bocák 2002), so more alpha taxonomic work is essential to determine their taxonomic position.

***Cautires albonigrus* Kazantsev sp. nov.** (Plate 56 figs 1-3)

Holotype ♂ NME: INDONESIA E, W New Guinea, Doberai Peninsula, Arfak mts, Anggi Gigi Lake S env., Uper vill. 2-2,5 km NNE, 1°17'10S, 133°54'18"E, 09.IX.2015, 1900-2480 m, primary mid montane rainforest, leg. D.Telnov.

Derivatio nominis: The name of the new species is derived from the Latin for “white” and “black”, alluding to its coloration.

Measurements: Length 7.4 mm, width across humeri 1.4 mm.

Description: Black. Elytral proximal half whitish yellow. Head without rostrum. Vertex with fine median groove behind antennal prominence ending in inconspicuous broad W-shaped impression. Eyes small, interocular distance ca. 1.7 times greater than eye diameter. Labrum small, transverse. Palps slender; ultimate palpomeres elongate, almost pointed distally and glabrous at apex. Antennal sockets separated by minute lamina. Antennae attaining to elytral five sixths, from antennomere 3 flabellate; antennomere 3 ca. 4 times longer than antennomere 2 and 1.3 times shorter than antennomere 4; flabellae of antennomeres 3-5 ca. 3.4 times longer than relevant antennal stem; antennomeres 3-11 with short erect pubescence (Plate 56 fig. 1). Pronotum transverse, ca. 1.5 times as wide as long, trapezoidal, bisinuate basally and semi-circularly produced anteriorly, with slightly concave sides, conspicuous acute posterior and evident blunt anterior angles; median cell rhomboidal, relatively broad, reaching anterior margin; lateral carinae narrow, curved; anterior cells diverging anteriorly, formed by straight antero-lateral carinae, not quite attaining to anterior margin. Mesothoracic spiracle small, hooded; hood narrow, erect. Scutellum transverse, slightly narrowing distally, broadly emarginate at apex (Plate 56 fig. 1). Elytra long, ca. 4 times longer than wide at humeri, parallel-sided, with four relatively weak, equally developed primary costae; interstices with double rows of irregular subquadrate cells; bottom of cells hairless; pubescence dense, short and sub-erect (Plate 56 fig. 1). Tibiae and femoris relatively long, straight and narrow; tarsomeres 3-4 feebly widened, with plantar pad (tarsomeres 1 and 2 with minute apical plantar pad). Male aedeagus with gradually widened distally and broad at distal two thirds in lateral view

median lobe; inner sac with scissors-like structure; phallobasal membrane attaining to ca. 0.3 length of median lobe (Plate 56 figs 2-3).

Sexual dimorphism: Female is unknown.

Differential diagnosis: *Cautires albonigrus* Kazantsev sp. nov. is readily separable from all congeners by the coloration, relatively long male antennal flabellae and the shape of the median lobe of the aedeagus (Plate 56 figs 1-3).

Distribution: Known only from the Arfak Mountains in Doberai (Bird's Head) Peninsula of West New Guinea.

***Cladophorus* Guerin-Meneville, 1830**

Cladophorus Guerin-Meneville, 1830: plate II, fig. 9.

Type species: *Cladophorus formosus* Guerin-Meneville, 1830, subsequent designation by Waterhouse, 1878

= *Odontocerus* Guerin-Meneville, 1830: 72.

Type species: *Cladophorus formosus* Guerin-Meneville, 1830, subsequent designation by Bourgeois, 1892

Note: Several dozen *Cladophorus* Guerin-Meneville, 1830 species are known from New Guinea (Kleine 1926; 1933).

Distribution: Papuan and Australian regions.

***Cladophorus dmitryi* Kazantsev sp. nov.** (Plate 56 figs 4-6)

Holotype ♂ NME: INDONESIA E, W New Guinea, Doberai Peninsula, Arfak mts, Anggi Gigi Lake S env., Uper vill. 2-2,5 km NNE, 1°17'10S, 133°54'18"E, 09.IX.2015, 1900-2480 m, primary mid montane rainforest, leg. D.Telnov.

Paratypes 2 ♂ ICM & DTC: same label as in holotype.

Derivatio nominis: Patronymic. The new species is named after Dr. Dmitry Telnov (The Entomological Society of Latvia, Rīga) who collected the type series.

Measurements: Length 15.5-17.8 mm, width across humeri 3.4-3.7 mm.

Description: Black; underside with faint bluish metallic tint. Pronotum orange testaceous; broad band at elytral proximal two thirds, except at basal sixth, light gray. Head without rostrum. Vertex with two deep round impressions behind antennal prominence. Eyes large, interocular distance ca. 1.7 times greater than eye diameter. Labrum small, transverse, truncate anteriorly; epistoma concave. Palps short; ultimate palpomeres massive, conspicuously widened distally and oblique at apex.



Antennal sockets separated by narrow triangular lamina. Antennae attaining to elytral three fourths, from antennomere 3 flabellate; antennomere 3 ca. 9 times longer than antennomere 2 and 1.1 times longer than antennomere 4; flabellum of antennomere 3 ca. 2.4 times, flabellae of antennomeres 4 and 5 ca. 3 times longer than relevant antennal stem; antennomeres 3-11 with short erect pubescence (Plate 56 fig. 4). Pronotum transverse, ca. 1.5 times as wide as long, densely pubescent, trapezoidal, bisinuate basally and triangularly produced anteriorly, with explanate sides, truncate posterior and evident blunt anterior angles; median cell narrow, extending to pronotal 0.75; lateral carinae obliterate; anterior cells noticeable only basally, antero-lateral carinae almost complete obsolete. Mesothoracic spiracle massive, hooded; hood long, bent backwards. Scutellum subquadrate, triangularly emarginate at apex (Plate 56 fig. 4). Elytra long, ca. 3.8 times longer than wide at humeri, noticeably widened distally, with four equally developed primary costae; interstices with double rows of regular subquadrate cells; pubescence uniform, dense, short and decumbent (Plate 56 fig. 4). Tibiae and femoris straight, narrow; tarsomeres 2-4 widened, tarsomeres 1-4 with prominent plantar pad. Male aedeagus with straight, relatively narrow, gradually widened distally and constricted near apex median lobe; inner sac with bipod elongate structure; phallobasal membrane attaining to ca. 0.3 length of median lobe (Plate 56 figs 5-6).

Sexual dimorphism: Female is unknown.

Differential diagnosis: *Cladophorus dmitryi* Kazantsev sp. nov. is readily separated from congeners by the coloration, small eyes, broad pronotum with actually absent lateral and antero-lateral carinae and narrow straight median lobe of the aedeagus (Plate 56 figs 4-6).

Distribution: Known only from the Arfak Mountains in Doberai (Bird's Head) Peninsula of West New Guinea.

***Metrioguinus* Kazantsev gen. nov.**

Type species: *Metrioguinus kristinae* sp. nov.

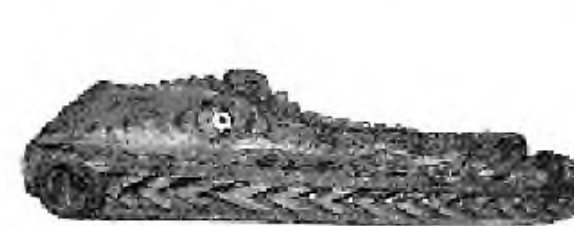
Derivatio nominis: The name of the new species is derived from the genus name *Metriorrhynchus* Gemminger et Harold, 1869, the type genus of Metriorrhynchini, where the new genus belongs, and the geographic name New Guinea, alluding to its distribution.

Description: Alate, slender, elongate. Head transverse, almost flat between eyes behind antennal prominence, noticeably narrowed behind

eyes. Fastigium blunt. Eyes relatively small, semi-spherical. Labrum small, transverse; frons and labrum densely pubescent; epistoma concave. Mandibles slender, evenly rounded. Maxillary palps 4-segmented, with ultimate palpomere massive, widened and flattened distally. Labial palps 3-segmented, considerably shorter than maxillary palps, with large ultimate palpomere. Antennal prominence moderately bulging; antennal sockets separated by narrow lamina. Antenna 11-segmented, long, narrow, filiform, round in cross-section; pedicel (antennomere 2) considerably shorter than antennomere 3, antennomeres 3 and 4 subequal in length; antennomeres 3-11 with short sub-erect pubescence (Plate 57 fig. 1). Pronotum about as wide as long, slightly more narrow than elytra, with well noticeable posterior and rounded anterior angles; median cell wedge-shaped, connected with anterior margin by carina; antero-lateral and lateral carinae well developed. Elytra narrow, parallel-sided, with four relatively weak, equally developed primary costae; interstices with double row of small regular cells (Plate 57 fig. 1). Legs long; trochanters longer than wide, narrow, considerably shorter than femurs, connected to femora distally; femurs and tibiae only slightly flattened; tibial spurs minute; tarsomeres narrow; tarsomeres 1 and 2 with apical plantar pad; all claws simple. Male proctiger attached to paraproct; paraproct divided by median suture, triangularly incised at proximal margin; ultimate ventrite elliptical, with symmetric, relatively short and broad, proximally widened and rounded spiculum gastrale, externally with spine formed by longer bristles (Plate 57 figs 2-3). Aedeagus more or less symmetric, with narrow elongate median lobe; inner sac structures mostly sclerotized, evaginated; phallobase anuliform, relatively broad; phallobasal membrane not sclerotized (Plate 57 figs 4-5).

Sexual dimorphism: Female is unknown.

Differential diagnosis: *Metrioguinus* Kazantsev gen. nov. is readily separable from other genera of Metriorrhynchini by the combination of filiform, round in cross-section antennae, seven-areola pronotum and completely evaginated inner sac structures of the aedeagus (Plate 57 figs 1-5). The pronotal structure of the new genus is very similar to that of *Cautires* Waterhouse or *Xylobanus* Waterhouse, but its antennae and male copulatory organs are very unlike those of the two genera. As a matter of fact, the filiform, round in cross-section antennae and completely evaginated inner sac structures of the aedeagus have not been reported among the Metriorrhynchinae, where more than a thousand species have already been described. On



the other hand, the aforesaid morphologies often come across in other lycid lineages. For instance, a similar type of the aedeagus is typical of *Mesolycus* Gorham, 1883 of the tribe Macrolycini, while the same antennal structure is widespread in Calochromini, Dictyopterini, Platerotini, etc. Nevertheless, the characteristic seven-areola pronotum and circular phallobase with developed phallobasal membrane place the taxon in Metriorrhynchini.

Distribution: Known only from western New Guinea.

***Metrioguinus kristinae* Kazantsev sp. nov.** (Plate 57 fig. 1-5)

Holotype ♂ NME: INDONESIA E, W New Guinea, Doberai Peninsula, Arfak mts, Anggi Gigi Lake S env., Uper vill. 2-2,5 km NNE, 1°17'10S, 133°54'18"E, 09.IX.2015, 1900-2480 m, primary mid montane rainforest, leg. D.Telnov.

Paratype 1♂ ICM: same label as in holotype.

Derivatio nominis: The new species is named after Kristine Greķe (Rīga, Latvia), who participated in 2007, 2009, 2010 and 2013 to Entomological Society's of Latvia Papuan region expeditions and personally collected several interesting Lycidae.

Measurements: Length 5.8-6.1 mm, width across humeri 1.0-1.1 mm.

Description: Dark brown to black. Elytral proximal two fifths whitish yellow. Head without rostrum. Vertex with narrow median groove behind antennal prominence. Eyes small, interocular distance ca. 1.7 times greater than eye diameter. Labrum densely punctate, inconspicuously emarginate medially. Ultimate palpomeres elongate, oval and flattened at apex. Antennae attaining to elytral two thirds, filiform; antennomere 3 ca. 5 times longer than antennomere 2 and 1.1 times shorter than antennomere 4; antennomeres 3-11 with short erect pubescence (Plate 57 fig. 1). Pronotum slightly wider than long, anteriorly roughly rugulose, slightly bisinuate basally and semi-circular anteriorly, with small acute laterally produced posterior and rounded anterior angles; median cell moderately broad, extending to pronotal 0.65; lateral carinae somewhat concave; anterior cells diverging anteriorly, formed by straight antero-lateral carinae. Mesothoracic spiracle small, not protruding, with minute erect anterior hood. Scutellum subquadrate, slightly narrowing distally, triangularly emarginate at apex (Plate 57 fig. 1). Elytra long and narrow, ca. 4.3 times longer than wide at humeri, parallel-sided, with four equally developed primary costae; interstices with double rows of regular

subquadrate cells; pubescence dense, short and decumbent, concealing reticulation (Plate 57 fig. 1). Femurs and tibiae straight, narrow, subequal in length; tarsomere 4 slightly widened, tarsomeres 1-4 with plantar pad, tarsomeres 1-2 with apical plantar pad. Male ultimate ventrite ca. 2.5 times longer than wide, bristles forming spine ca. 5 times longer than surrounding pubescence (Plate 57 figs 2-3). Aedeagus with slightly widened medially and bent in lateral view median lobe; inner sac with ring-like and paired toothed cover distal structure; phallobasal membrane attaining to ca. 0.4 length of median lobe (Plate 57 figs 4-5).

Sexual dimorphism: Female is unknown.

Differential diagnosis: *Metrioguinus kristinae* Kazantsev sp. nov. is readily distinguishable from *M. vikhrevi* Kazantsev sp. nov., the only other member of the genus, by the coloration and widened medially median lobe of the aedeagus with differently shaped inner sac structures (Plate 57 figs 1-3).

Distribution: Known only from the Arfak Mountains in Doberai (Bird's Head) Peninsula of West New Guinea.

***Metrioguinus vikhrevi* Kazantsev sp. nov.** (Plate 57 fig. 6-8)

Holotype ♂ ICM: E Indonesia, Papua, env. Wamena Baliem Reserve, 04°06'S, 139°03'E, 2000 m, 16-25. XII.2014, N. Vikhrev leg.

Derivatio nominis: Patronymic. The new species is named after Dr. Nikita Vikhrev (Moscow, Russia), who collected the unique type specimen.

Measurements: Length 5.4 mm, width across humeri 1.1 mm.

Description: Dark brown to black. Elytral proximal fourth, except shoulders and scutellar area, whitish yellow. Head without rostrum. Vertex with median groove behind antennal prominence. Eyes small, interocular distance ca. 1.5 times greater than eye diameter. Palps slender; ultimate palpomeres relatively large, elongate, oval and flattened at apex. Antennal sockets separated by narrow lamina. Antennae attaining to elytral three fourths, filiform; antennomere 3 ca. 5 times longer than antennomere 2 and 1.1 times shorter than antennomere 4; antennomeres 3-11 with short erect pubescence (Plate 57 fig. 6). Pronotum transverse, ca. 1.3 times as wide as long, slightly bisinuate basally and semi-circularly produced anteriorly, with conspicuous acute posterior and rounded blunt anterior angles; median cell moderately broad, extending to pronotal 0.6; lateral carinae somewhat concave; anterior cells diverging anteriorly, formed by obliterated



ate near anterior margin antero-lateral carinae. Mesothoracic spiracle minute, not protruding. Scutellum subquadrate, slightly narrowing distally, feebly emarginate at apex (Plate 57 fig. 6). Elytra long, ca. 4.1 times longer than wide at humeri, parallel-sided, with four equally developed primary costae; interstices with double rows of irregular roundish cells; pubescence dense, short and semi-erect (Plate 57 fig. 6). Femurs and tibiae straight, narrow, subequal in length; tarsomere 4 slightly widened, tarsomeres 1-4 with plantar pad, tarsomeres 1-2 with apical plantar pad. Male aedeagus with widened apically and bent in lateral view median lobe; inner sac with gripping distal structure; phallobasal membrane attaining to ca. 0.4 length of median lobe (Plate 57 figs 7-8).

Sexual dimorphism: Female unknown.

Differential diagnosis: *Metrioguinus vikhrevi* Kazantsev sp. nov. is readily separable from *M. kristinae* Kazantsev sp. nov. by the coloration and not widened medially median lobe of the aedeagus with differently shaped inner sac structures (Plate 57 figs 6-8).

Distribution: Known only from Central Cordillera of New Guinea (East Indonesia).

***Xylobanus* Waterhouse, 1879**

Xylobanus Waterhouse, 1879: 38.

Type species: *Lycus costifer* Walker, 1858: 282, original designation

Note: The genus *Xylobanus* Waterhouse, 1879, a widespread and species-rich Old World genus, has so far listed eighteen New Guinean species (Kleine 1933, 1935; Kazantsev 2015b).

Distribution: Distributed in East Palaearctic, Oriental, Afrotropical, Australian and Papuan regions (Kleine 1933).

***Xylobanus albipennis* Kazantsev sp. nov.** (Plate 58 figs 1-3)

Holotype ♂ NME: INDONESIA E, W New Guinea, Doberai Peninsula, Arfak mts, Anggi Gigi Lake S env., Uper vill. 2-2,5 km NNE, 1°17'10S, 133°54'18"E, 09.IX.2015, 1900-2480 m, primary mid montane rainforest, leg. D.Telnov.

Paratypes 2 ♂ IMC & DTC: same label as in holotype.

Derivatio nominis: The name of the new species is derived from the Latin for "with white wings", alluding to its coloration.

Measurements: Length 5.6-6.9 mm, width across humeri 1.0-1.2 mm.

Description: Dark brown to black. Proximal pro-

notal half whitish yellow. Head without rostrum. Vertex with transverse impression behind antennal prominence. Eyes small, interocular distance ca. 1.7 times greater than eye diameter. Labrum small, transverse, rounded anteriorly. Palps slender; ultimate palpomeres elongate, pointed distally and glabrous at apex. Antennal sockets separated by narrow lamina. Antennae attaining to elytral three fifths, from antennomere 3 flattened and slightly serrate; antennomere 3 ca. 7 times longer than antennomere 2 and subequal in length to antennomere 4; antennomeres 3-11 with short decumbent pubescence (Plate 58 fig. 1). Pronotum transverse, ca. 1.3 times as wide as long, trapezoidal, bisinuate basally and convex anteriorly, with straight sides, inconspicuous acute posterior and evident blunt anterior angles; median cell broad, extending to pronotal 0.7; lateral carinae conspicuously weakened; anterior cells diverging anteriorly, formed by straight antero-lateral carinae. Mesothoracic spiracle small, slightly protruding, not hooded. Scutellum subquadrate, slightly narrowing distally, semi-circularly emarginate at apex (Plate 58 fig. 1). Elytra long, ca. 4.6 times longer than wide at humeri, parallel-sided, with four equally developed in proximal half primary costae, with costae 2 and 4 noticeably stronger in distal half; interstices with single row of large regular subquadrate cells; bottom of cells hairless; pubescence scarce, short and semi-erect (Plate 58 fig. 1). Tibiae and femoris straight, narrow; tarsomeres not widened, tarsomeres 1 and 2 without plantar pad. Male aedeagus with short, robust, conspicuously widened distally and rounded at apex median lobe, slightly curved in lateral view; phallobasal membrane short, ca. 0.3 length of median lobe (Plate 58 figs 2-3).

Sexual dimorphism: Female is unknown.

Differential diagnosis: *Xylobanus albipennis* Kazantsev sp. nov. is readily separated from the congeners by the coloration, slender elongate body and short, robust, conspicuously widened distally median lobe of the aedeagus (Plate 58 figs 1-3).

Distribution: Known only from the Arfak Mountains in Doberai (Bird's Head) Peninsula of West New Guinea.

***Xylobanus mauroleucus* Kazantsev sp. nov.** (Plate 58 figs 4-6)

Holotype ♂ NME: INDONESIA E, W New Guinea, Doberai Peninsula, Arfak mts, Anggi Gigi Lake S env., Uper vill. 2-2,5 km NNE, 1°17'10S, 133°54'18"E, 09.IX.2015, 1900-2480 m, primary mid montane rainforest, leg. D.Telnov.



Derivatio nominis: The name of the new species is derived from the Greek for “black and white”, alluding to its coloration.

Measurements: Length 6.8 mm, width across humeri 1.6 mm.

Description: Dark brown to black. Proximal pronotal two fifths whitish yellow. Head without rostrum. Vertex almost flat behind non-bulging antennal prominence. Eyes small, interocular distance ca. 1.5 times greater than eye diameter. Labrum transverse, short, slightly emarginate medially; epistoma nearly truncate. Palps slender; ultimate maxillary palpomere relatively short, slightly widened distally and nearly truncate at apex. Antennal sockets separated by minute triangular lamina. Antennae attaining to elytral two thirds, from antennomere 3 flattened and serrate; antennomere 3 ca. 8 times longer than antennomere 2 and ca. 1.2 times longer than antennomere 4; antennomeres 3-11 with short dense erect pubescence (Plate 58 fig. 1). Pronotum transverse, ca. 1.4 times as wide as long, slightly bisinuate basally and semi-circular anteriorly, with almost parallel, concave before posterior angles sides, conspicuous acute posterior and rounded anterior angles; median cell broad, extending to pronotal 0.7; lateral carinae conspicuous, almost straight; anterior cells almost not diverging anteriorly, formed by straight antero-lateral carinae. Mesothoracic spiracle small, hooded; hood narrow, erect. Scutellum transverse, slightly narrowing distally, triangularly emarginate at apex (Plate 58 fig. 1). Elytra long, ca. 3.8 times longer than wide at humeri, parallel-sided, noticeably broader than pronotum, with four equally developed primary costae; interstices with single row of large regular subquadrate cells; bottom of cells hairy; pubescence dense, short and decumbent (Plate 58 fig. 1). Tibiae and femoris straight, narrow; tarsomeres 3-4 widened, all tarsomeres with plantar pad (tarsomeres 1 and 2 with minute apical plantar pad). Male aedeagus with bullet-shaped median lobe, proximally convex in lateral view; inner sac with scissors-like structure; phallobasal membrane short, ca. 0.3 length of median lobe (Plate 58 figs 2-3).

Sexual dimorphism: Female is unknown.

Differential diagnosis: *Xylobanus mauroleucus* Kazantsev sp. nov. is easily distinguishable from the similarly coloured *X. albipennis* Kazantsev sp. nov. by the more serrate antennae, more transverse, but noticeably more narrow than elytra pronotum and relatively shorter elytra, structure of mesothoracic spiracles, tarsomeres, etc., as well as by the bullet-shaped median lobe of the aedeagus with scissors-like inner sac structure (Plate 58 figs

4-6).

Distribution: Known only from the Arfak Mountains in Doberai (Bird's Head) Peninsula of West New Guinea.

***Porrostoma* Laporte, 1838**

Porrostoma Laporte, 1838: 26.

Type species: *Lycus rufipennis* Fabricius, 1801, by monotypy

Note: The genus *Porrostoma* Laporte, 1838 is widespread in New Guinea, but is more species-rich in Australia (Kleine 1933). Seven species from New Guinea were added to this genus recently (Kazantsev 2015b).

Distribution: Papuan and Australian regions (Kleine 1933).

***Porrostoma arfakense* Kazantsev sp. nov.** (Plate 59 figs 1-3)

Holotype ♂ NME: INDONESIA E, W New Guinea, Doberai Peninsula, Arfak mts, Anggi Gigi Lake S env., Uper vill. 2-2,5 km NNE, 1°17'10S, 133°54'18"E, 09.IX.2015, 1900-2480 m, primary mid montane rainforest, leg. D.Telnov.

Derivatio nominis: The name of the new species is derived from the Arfak Mountains where the unique type specimen was collected.

Measurements: Length 5.3 mm, width across humeri 1.1 mm.

Description: Dark brown to black. Proximal pronotal fifth whitish yellow. Head without rostrum. Vertex with inconspicuous transverse impression behind antennal prominence. Eyes small, interocular distance ca. 1.6 times greater than eye diameter. Labrum small, transverse, truncate anteriorly; epistoma concave. Palps slender; ultimate palpomeres narrow, elongate, almost pointed distally and glabrous at apex. Antennal sockets separated by minute lamina. Antennae from antennomere 3 broad, serrate; antennomere 3 ca. 4.5 times longer than antennomere 2 and subequal in length to antennomere 4; antennomeres 3-11 with short dense sub-erect pubescence (Plate 59 fig. 1). Pronotum transverse, ca. 1.3 times as wide as long, feebly bisinuate basally and convex anteriorly, with slightly concave sides, inconspicuous acute posterior and evident blunt anterior angles; median cell moderately broad, extending to pronotal 0.6; lateral carinae inconspicuous medially, concave; anterior cells slightly diverging anteriorly, formed by obliterate near anterior margins antero-lateral carinae. Mesothoracic spiracle small, non-protruding, not



hooded. Scutellum transverse, slightly narrowing distally, triangularly emarginate at apex (Plate 59 fig. 1). Elytra long, ca. 4 times longer than wide at humeri, parallel-sided, with four equally developed primary costae, except weakened in distal fourth primary costa 3; all interstices with double rows of small roundish cells, except single row of cells in interstices 1-3 medially below the middle; bottom of cells glabrous; pubescence scarce, short and decumbent (Plate 59 fig. 1). Tibiae and femora straight, narrow; tarsomere 4 slightly widened, tarsomere 1 without plantar pad. Male aedeagus with relatively narrow, curved median lobe; inner sac with trilobate distal structure covered with minute thorns; phallobasal membrane elongate, sclerotized, attaining to ca. 0.7 length of median lobe (Plate 59 figs 2-3).

Sexual dimorphism: Female is unknown.

Differential diagnosis: In the elytral structure *Porrostoma arfakense* Kazantsev sp. nov. is quite unlike other members of the genus (Plate 59 fig. 1). At the same time it resembles *Procautires multipilosus* Kazantsev, 2016, both in the elytral structure and male genitalia (Plate 60 figs 1-3). It is possible that these species form a monophyletic lineage.

Distribution: Known only from the Arfak Mountains in Doberai (Bird's Head) Peninsula of West New Guinea.

Platerotini Kleine, 1929

Plateros Bourgeois, 1879

Plateros Bourgeois, 1879: xix.

Type species: *Eros brasiliensis* Lucas, 1857, subsequent designation by Zaragoza, 1999

Note: The genus *Plateros* Waterhouse, 1879 is one of the most species-rich lycid genera, with almost world-wide distribution. The number of species described in this genus is over 800, with 73 species known in New Guinea (Kazantsev 2015a). Distribution: All biogeographical regions, except western Palaearctic, Greater Antilles, Madagascar, New Zealand and Melanesia/Polynesia (Kleine 1933).

***Plateros candidus* Kazantsev sp. nov.** (Plate 59 fig. 4)

Holotype ♀ NME: INDONESIA E, W New Guinea, Doberai Peninsula, Arfak mts, Anggi Gigi Lake S env., Uper vill. 2-2,5 km NNE, 1°17'10S, 133°54'18"E, 09.IX.2015, 1900-2480 m, primary mid montane rainforest, leg. D.Telnov.

Derivatio nominis: The name of the new spe-

cies is derived from the Latin for "shining white", alluding to its coloration.

Measurements: Length 8 mm, width across humeri 1.9 mm.

Description: Black. Elytra, except narrow distal margin, whitish yellow; elytral narrow distal margin gray. Vertex with transverse impression behind antennal prominence. Eyes relatively small, interocular distance ca. 1.2 times greater than eye diameter. Labrum small, transverse, slightly convex anteriorly; epistoma feebly concave. Palps slender; ultimate palpomeres small, elongate, slightly widening distally. Antennal sockets separated by minute lamina. Antennae attaining to elytral two thirds, from antennomere 3 flattened, serrate; antennomere 3 ca. 3.2 times longer than antennomere 2 and 1.2 times shorter than antennomere 4; antennomeres 3-11 with short sub-erect pubescence (Plate 59 fig. 4). Pronotum transverse, ca. 1.6 times as wide as long, trapezoidal, pubescent, bisinuate basally and semi-circularly produced anteriorly, with conspicuous acute posterior and rounded anterior angles. Mesothoracic spiracle small, slightly protruding, not hooded. Scutellum transverse, truncate at apex (Plate 59 fig. 4). Elytra long, ca. 3.5 times longer than wide at humeri, somewhat widening distally, with four equally developed primary costae; interstices with double rows of small subquadrate cells; pubescence dense, short and decumbent (Plate 59 fig. 4). Tibiae and femoris straight, narrow; tarsomeres 3-4 widened, plantar pad on tarsomere 1 occupying ca. its distal half.

Sexual dimorphism: Male is unknown.

Differential diagnosis: *Plateros candidus* Kazantsev sp. nov. may be easily separated from the congeners by the combination of coloration, antennal structure and shape of pronotum (Plate 59 fig. 4).

Distribution: Known only from the Arfak Mountains in Doberai (Bird's Head) Peninsula of West New Guinea.

Mimicry

The net-winged beetles are a well-known group of models for many mimicry complexes in the animal kingdom and are mimicked by representatives of many other coleopterous families, as well as other insect orders (e.g. Carpenter & Ford 1933; Linsley et al. 1961; Kazantsev 2005).

While in most other biogeographical regions there exist only a limited (usually small) number of lycid colour patterns, New Guinea is marked for a



seemingly unlimited variety of such patterns and some of the colour forms that occur here are not reported among net-winged beetles elsewhere, e.g., species with green dorsum (Kazantsev 2015c) or blue or silvery portions of elytra (Kleine 1926; 1935) to name but a few.

A complex with a rather unusual colour pattern was discovered between ca. 1900-2500 meters above sea level in the primary mid-montane rain-forest of the Arfak Mountains in Doberai Peninsula, West New Guinea, around Lake Gigi (Plate 61). This complex is well characterized by bicolorous elytra, with black posterior and whitish pale yellow anterior portions; only in *Plateros candidus* Kazantsev sp. nov. just the elytral apices are infuscated (Plate 60 fig. 8). The pronotum is mostly black, with one exception, the orange-testaceous pronotum in *Cladophorus dmitryi* Kazantsev sp. nov. (Plate 60 fig. 2). In addition to the Lycidae represented by seven species from six different genera and two tribes (Plate 60 figs 1-3, 5-8), cantharids and chrysomelids of very similar appearance (Plate 60 figs 9-12) were collected in the very same locality - a transect along the montane ridge. Specimens were sampled from upperside of low-strata foliage (1-1.5 m above the ground). The specimens were sitting motionless or moving slowly and not flying away when disturbed (beaten from leaves and branches). A few specimens were observed saunteringly moving around the same leaf not leaving it when reaching the edge, but rather returning to the central position. The mimicking Cantharidae and Chrysomelidae specimens were found in similar circumstances, some of them sitting on the same young trees together with the lycids. Average day temperatures at collecting spot were +22-24 °C, but much cooler and very wet (misty) at night (about +10 °C).

In this case the Müllerian mimicry complex of the Net-winged beetles is complemented by the Batesian complex formed by the Net-winged beetles and their mimics, the Soldier beetles and the Leaf beetles. Additionally, a similarly coloured Net-winged beetle (Plate 60 fig. 4) was found some 700 km east at approximately the same altitude, at 2000 m above sea level, in the Central Cordillera of New Guinea, East Indonesia.

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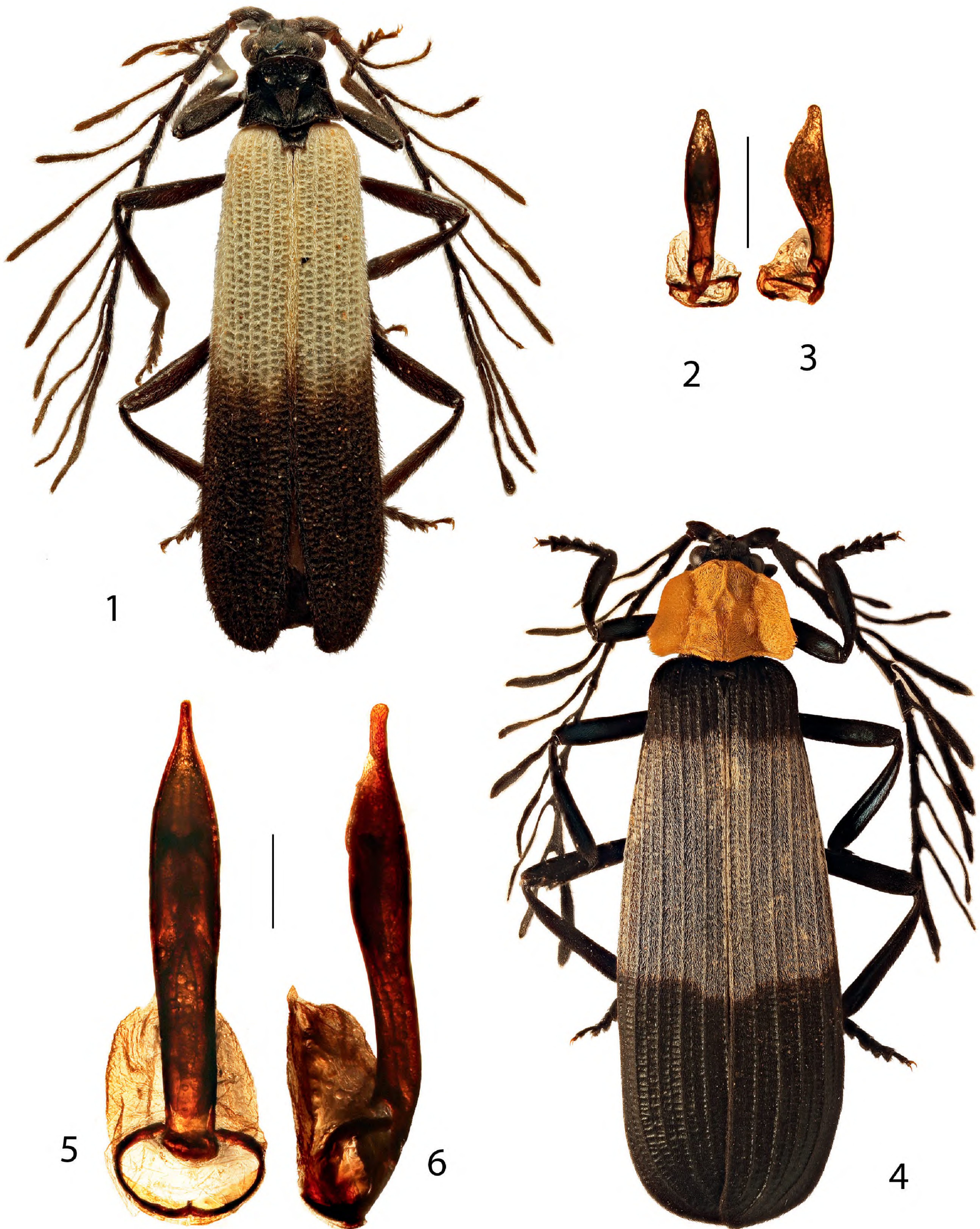
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Plate 56

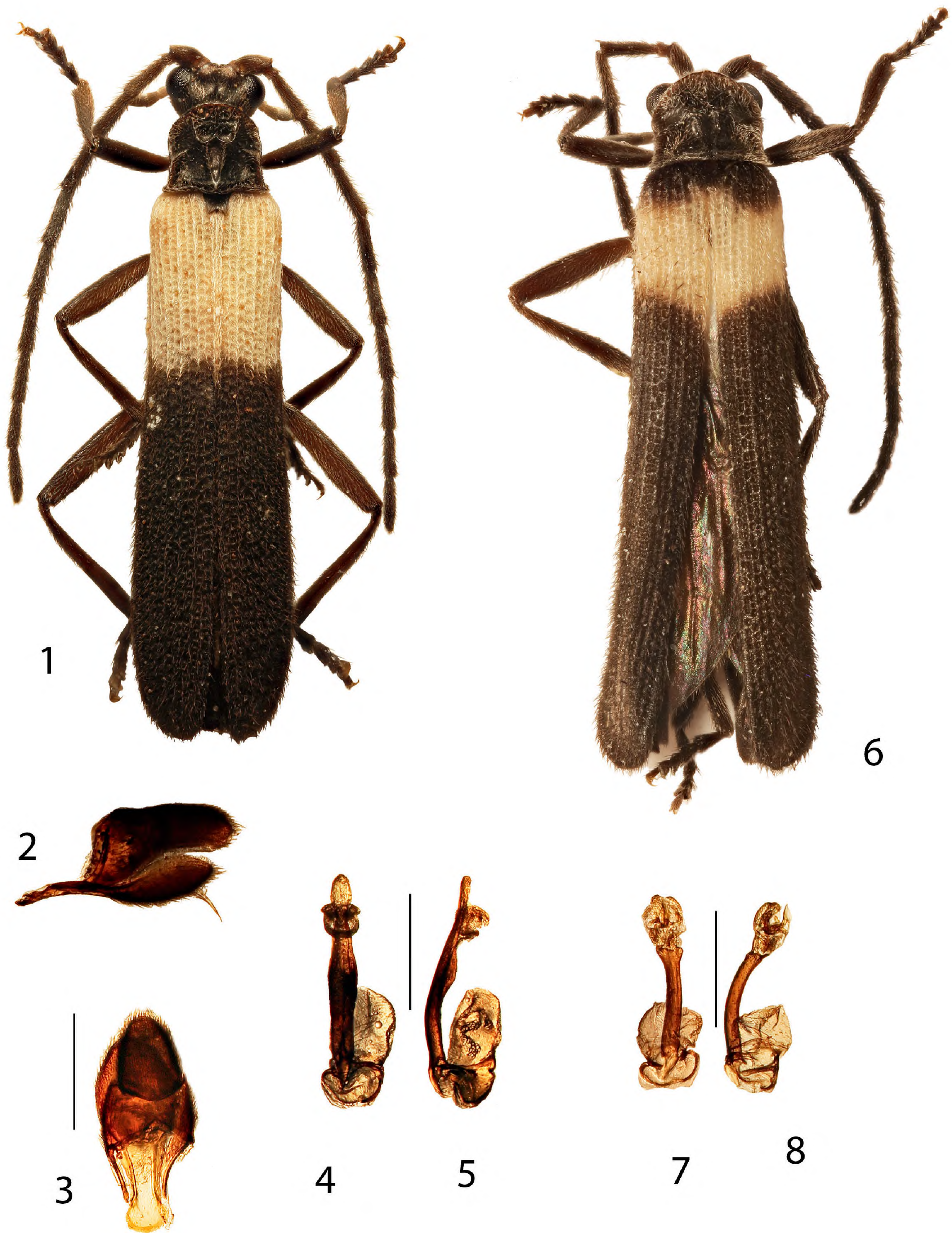
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Figures 1-6. General view and aedeagi of Metriorrhynchini, holotypes. 1-3 – *Cautires albonigrus* Kazantsev sp. nov.; 4-6 – *Cladophorus dmitryi* Kazantsev sp. nov.; 1, 4 – Habitus, dorsal view; 2-3 & 5-6 – Aedeagi [scale bar 0.5 mm].

Plate 57

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Figures 1-8. General view and details of *Metrioguinus* Kazantsev gen. nov., holotypes. 1-5 – *M. kristinae* Kazantsev sp. nov.; 6-8 – *M. vikhrevi* Kazantsev sp. nov.; 1, 6 – Habitus, dorsal view; 2 – Ultimate abdominal segments, lateral view; 3 – ditto, dorsal view; 4-5 & 7-8 – Aedeagi [scale bar 0.5 mm].

Plate 58

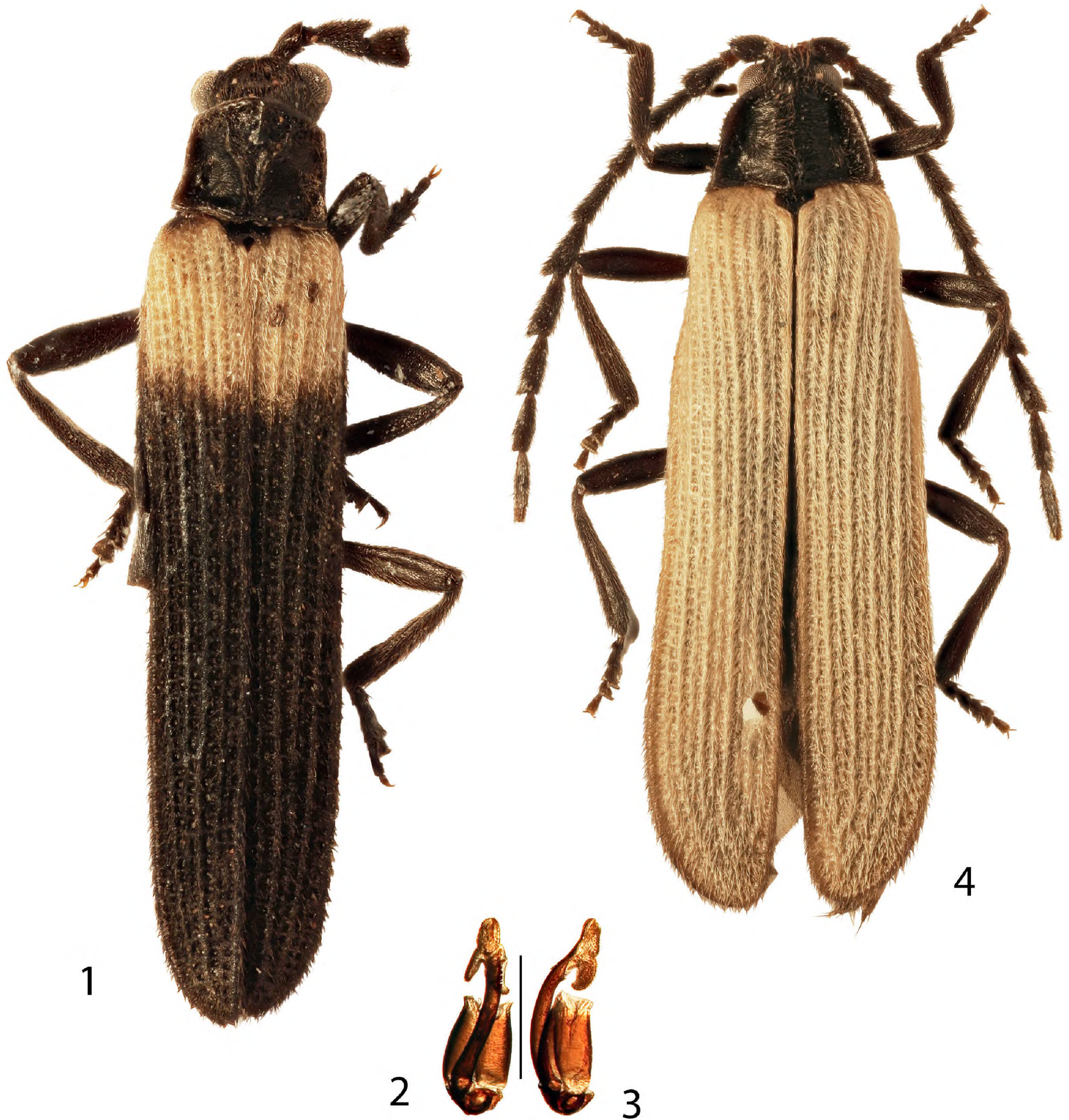
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Figures 1-6. General view and aedeagi of *Xylobanus*, holotypes. 1-3 – *Xylobanus albipennis* Kazantsev sp. nov.; 4-6 – *X. mauroleucus* Kazantsev sp. nov.; 1, 4 – Habitus, dorsal view; 2-3 & 5-6 – Aedeagi [scale bar 0.5 mm].

Plate 59

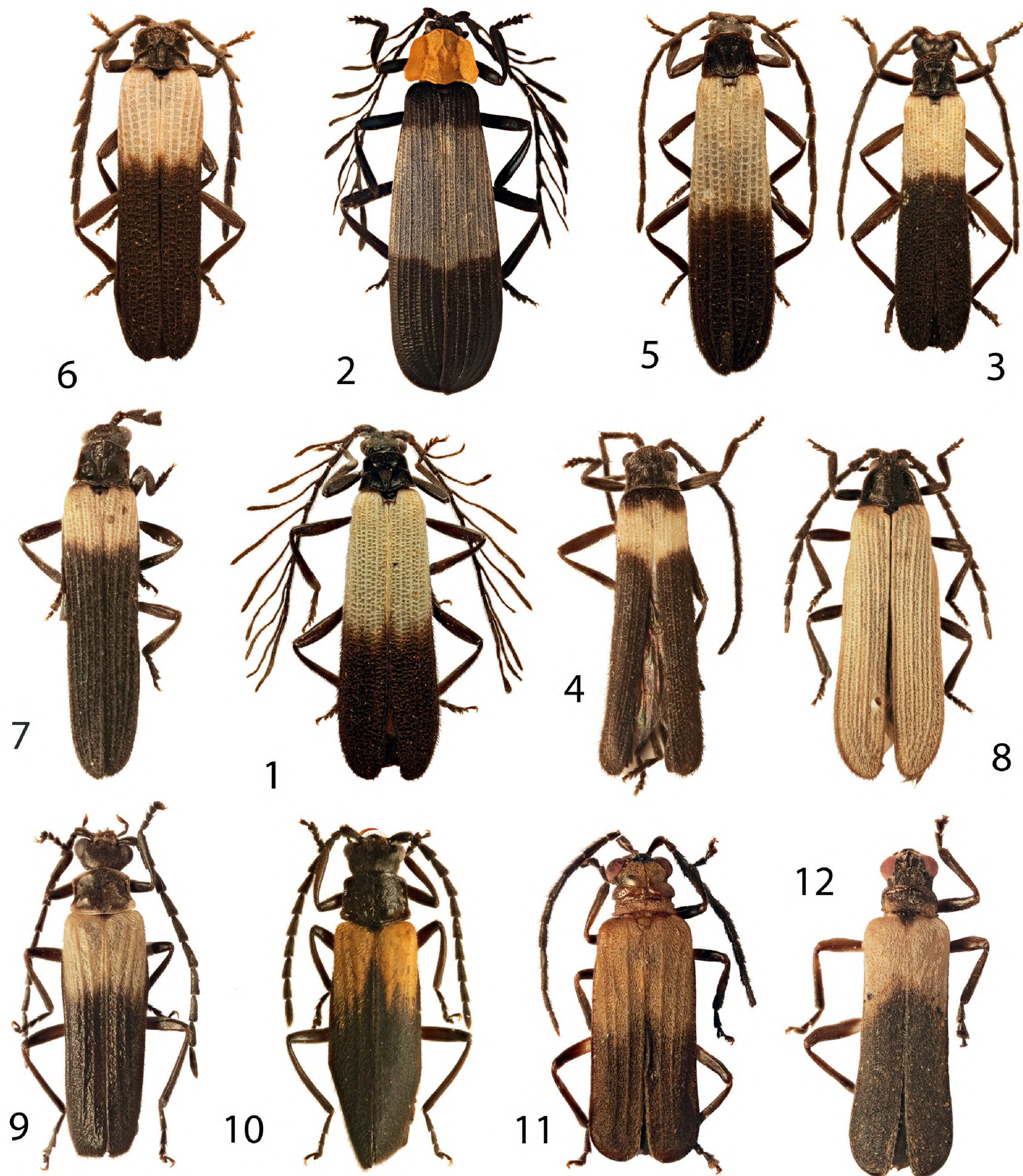
KAZANTSEV, S.V., TELNOV, D.: A mimetic assemblage of net-winged beetles (Coleoptera: Lycidae) from West Papua



Figures 1-4. General view and aedeagi of Lycidae, holotypes. 1-3 – *Porrostoma arfakense* Kazantsev sp. nov.; 4 – *Plateros candidus* Kazantsev sp. nov.; 1, 4 – Habitus, dorsal view; 2-3 – Aedeagi [scale bar 0.5 mm].

Plate 60

KAZANTSEV, S.V., TELNOV, D.: A mimetic assemblage of net-winged beetles (Coleoptera: Lycidae) from West Papua



Figures 1-12. General view of mymetic Papuan Lycidae, Cantharidae and Chrysomelidae. 1 – *Cautires albonigrus* Kazantsev sp. nov.; 2 – *Cladophorus dmitryi* Kazantsev sp. nov.; 3 – *Metrioguinus kristinae* Kazantsev sp. nov., sp. nov.; 4 – *M. vikhrevi* Kazantsev sp. nov.; 5 – *Xylobanus albipennis* Kazantsev sp. nov.; 6 – *X. mauroleucus* Kazantsev sp. nov.; 7 – *Porrostoma arfakense* Kazantsev sp. nov.; 8 – *Plateros candidus* Kazantsev sp. nov.; 9 – Cantharidae Silinae, gen. sp. 1; 10 – Cantharidae Silinae, gen. sp. 2; 11 – Chrysomelidae, gen. sp. 1; 12 – Chrysomelidae, gen. sp. 2.

Plate 61

KAZANTSEV, S.V., TELNOV, D.: A mimetic assemblage of net-winged beetles (Coleoptera: Lycidae) from West Papua



1



2

Figures 1-2. Mid-montane fainforest (1) and biotope at sampling place (2) in the Arfak Mountains in Doberai Peninsula, West New Guinea, near Lake Gigi, Anggi lakes at ca. 2000-2500 meters above sea level (photos: D.Telnov, 2015).